

RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 101724,598
Source: IFWD
Date Processed by STIC: 09-28-2005

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IFWO

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/724,598

DATE: 09/28/2005

TIME: 10:47:26

Input Set : N:\Crf3\RULE60\10724598.raw.txt

Output Set: N:\CRF4\09282005\J724598.raw

SEQUENCE LISTING

3 (1) GENERAL INFORMATION:

5 (i) APPLICANT: BLANCHE, FRANCIS; CAMERON, BEATRICE; CROUZET,
6 JOEL;DEBUSSCHE, LAURENT; LEVY SCHIL, SOPHIE;
7 THIBAUT, DENIS9 (ii) TITLE OF INVENTION: POLYPEPTIDES INVOLVED IN THE
10 BIOSYNTHESIS OF COBALAMINS AND/OR COBAMIDES, DNA

SEQUENCES

11 CODING FOR THESE POLYPEPTIDES, PREPARATION METHOD AND
THEIR

12 USE.

14 (iii) NUMBER OF SEQUENCES: 60

16 (iv) CORRESPONDENCE ADDRESS:

17 (A) ADDRESSEE: MORGAN & FINNEGAN
18 (B) STREET: 555 13TH STREET, N.W.
19 (C) CITY: WASHINGTON
20 (D) STATE: DISTRICT OF COLUMBIA
21 (E) COUNTRY: USA
22 (F) ZIP: 20004

24 (v) COMPUTER READABLE FORM:

25 (A) MEDIUM TYPE: FLOPPY DISK
26 (B) COMPUTER: IBM PC COMPATIBLE
27 (C) OPERATING SYSTEM: PC-DOS/MS-DOS
28 (D) SOFTWARE: WORDPERFECT 5.1

30 (vi) CURRENT APPLICATION DATA:

C--> 31 (A) APPLICATION NUMBER: US/10/724,598
C--> 32 (B) FILING DATE: 01-Dec-2003
33 (C) CLASSIFICATION: 435

35 (vii) PRIOR APPLICATION DATA:

W--> 36 (A) APPLICATION NUMBER: 07/916,151
37 (B) FILING DATE: 14-SEP-1992W--> 38 (A) APPLICATION NUMBER: PCT/FR91/00054
39 (B) FILING DATE: 30-JAN-1991

41 (viii) ATTORNEY/AGENT INFORMATION:

42 (A) NAME: F. F. CALVETTI
43 (B) REGISTRATION NUMBER: 28,557
44 (C) REFERENCE/DOCKET NUMBER: 1290-7213

46 (ix) TELECOMMUNICATION INFORMATION:

47 (A) TELEPHONE: (202) 857-7887
48 (B) TELEFAX: (202) 857-7929

50 (2) INFORMATION FOR SEQ ID NO: 1:

52 (i) SEQUENCE CHARACTERISTICS:

53 (A) LENGTH: 5398 base pairs
54 (B) TYPE: Nucleic acid

55

(C) STRANDEDNESS: Double

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56 (D) TOPOLOGY: Unknown
58 (ii) MOLECULE TYPE: cDNA
60 (iii) HYPOTHETICAL: No
C--> 62 (vi) ORIGINAL SOURCE:
63 (A) ORGANISM: Pseudomonas denitrificans
64 (B) STRAIN:
70 (C) INDIVIDUAL ISOLATE:
71 (D) DEVELOPMENTAL STAGE:
72 (E) HAPLOTYPE:
73 (F) TISSUE TYPE:
74 (G) CELL TYPE:
75 (H) CELL LINE:
76 (I) ORGANELLE:
78 (ix) FEATURE:
79 (A) NAME/KEY:
80 (B) LOCATION:
81 (C) IDENTIFICATION METHOD:
82 (D) OTHER INFORMATION:Nucleotide Sequence of the 5' to 3'
83 strand from the 5398 bp ClaI-HindIII-HindIII-HindIII
84 fragment of Pseudomonas denitrificans
87 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:
90 GGGCTGCAGG TCGACTCTAG AATCGATGAA GCCTGCGATG AAGGCGGCGA CGAACAGGAA 60
92 GGGGAGCAGG TGGAAAGGCGA GATCTTGACAC GGCAGGGACT CGAGAGGAGA GCTGTCAGGC 120
94 GGGATTTTCC GCCTTGTGTC AGAGCCCGGC GCGATTGCA AAGCCTTCTG TCGCGGTGTT 180
96 GCTGTCCATG CAGGTGTCGA AATTGAAAAA CCGACAAAGA TTCACAGCCT TGTTCCAGCT 240
98 CGCTGTCTTT CTGGATGGAG GCGCTCTCGC CCGCATGGTG CCGAAGAAGG GCTGTCCTTG 300
100 CGATACGGTA GGCAGGATGAC GATCTTCCTC AAACCGCACA TGGCGATGGC GCAATCCGGT 360
102 TTGACCGGCC TTCCCGCGCTC CGGTAAAAAT GAAGGATATG CGACGGCGTC CGCTTGGCG 420
104 GACTGAAAGA GCGTCGGGTG CGGCCGACCC AGTCAGGGGG GCATCAGCCG GTGCTGTCCA 480
106 GATCGGCCGG GACGGATCGT CCCAGCCGGC GCTTCGTTAA GGAGAACAAAC GAAGGGAGCC 540
108 GGCCGCCGAT GCCATCGGGC CAACACTCTG CACAGACGAC GAAAGCAGGA GCGGGCTGG 600
110 TGCTCGGGCT CGGCTGCGAG CGTCGCACGC CGGCCGAAGA GGTGATCGCC CTTGCCGAGC 660
112 GTGCGCTTGC CGATGCCGGT GTTGCGCCCG GCGATCTGCG GCTGGTCGCC TCGCTCGATG 720
114 CTCGCGCCGA GGAGCCGGCG ATCCTGGCGG CCGCTCAGCA TTTCGCGTT CGGCCGCCGT 780
116 TCTACGATGC CGCCACGCTC GAAGCCGAAG CTTCCCGGCT CGCCAACCCG TCCGAGATCG 840
118 TCTTTGCCTA CACGGGTTGT CATGGCGTTG CCGAGGGTGC AGCGCTCGTC GGCGCCGGTC 900
120 GCGAAGCCGT GCTGATTGTG CAGAAGATCG TCTCCGCCCA TGCGACGGCC GCACTGCCG 960
122 GGCCGGCGAC CTTGCGCGCC GAAAAGCGCA TCCAGGCCGG GGAGGCTGTC TGATGCATTC 1020
124 TTATGTTGTT GAATTGAATC AATCTTTGC CCGGGGTTTC TCTCAAGTGG AATCCGGTTTC 1080
126 TTTAGAGAGC GCGTCAGGCG TGCCGTTGGG TGGGCCGAA ATACAGGTGG GACAGCACGC 1140
128 ATGATCGACG ACCTCTTGC CGGATTGCCG GCGCTCGAAA AAGGTTCGGT CTGGCTGGTC 1200
130 GGCGCCGGCC CCGGGCATCC CGGCCTGTTG ACGCTGCATG CGGCCAATGC GCTGCGCCAG 1260
132 GCGGATGTGA TCGTGCATGA TCGCGCTGGTC AACGAGGATT GCCTGAAGCT CGCGCGGCCG 1320
138 GGCGCCGTGC TGGAGTTGTC GGGCAAGCGT GGCGCAAGGC CGTCGCCGAA GCAGCGCGAC 1380
140 ATCTCGCTTC GCCTCGTCGA ACTCGCGCGC GCCGGCAACC GGGTGCTGCG CCTCAAAGGC 1440
142 GGCGATCCCT TCGTCTTCGG TCGCGGTGGC GAGGAGGCGC TGACGCTGGT CGAACACCAG 1500
144 GTGCCGTTCC GAATCGTGCC CGGCATCACC GCCGGTATCG GCGGGCTTGC CTATGCCGGC 1560
146 ATTCCCCTGTA CCCATCGCGA GGTCAACCAC GCGGTCACTT TCCTGACTGG CCATGATTCC 1620
148 TCCGGCCTGG TGCCGGATCG CATCAACTGG CAGGGCATCG CCAGCGGCTC GCCTGTCATC 1680

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150	GTCATGTACA	TGGCGATGAA	ACATATCGGC	GCGATCACCG	CCAACCTCAT	TGCCGGCGGC	1740
152	CGCTCGCCGG	ACGAACCGGT	CGCCTTCGTC	TGCAACGCCG	CGACGCCGCA	GCAGGCGGTG	1800
154	CTGGAAACGA	CGCTTGCAGC	TGCAGAGGCC	GATGTTGCGG	CGGCAGGGCT	GGAGCCGCCG	1860
156	GCGATCGTCG	TCGTCGGCGA	GGTGGTGCAG	CTGCGCGCAG	CGCTCGACTG	GATCGCGCG	1920
158	CTGGACGGGC	GCAAGCTTGC	CGCCGACCCG	TTCGCCAATC	GCATTCTCAG	GAACCCGGCA	1980
160	TGAGCGGATT	GCTGATTGCC	GCACCCCGGT	CCGGCTCCGG	CAAGACGACG	GTGACGCTCG	2040
162	GGCTGATGCG	CGCCCTGAAG	AGGCGCGGCC	TGGCGATCGC	GCCCCGGAAG	GCAGGGCGCG	2100
164	ACTATATCGA	TCCCGCTTTC	CACCGGGCAG	CGACCGCGA	GCCCTGCTTC	AACTACGACC	2160
166	CCTGGGCGAT	GCGCCCGGAA	CTGCTGCTTG	CCAATCGTC	GCATGTGGCC	TCCGGCGGGC	2220
168	GCACATTGAT	CGTCGAGGCG	ATGATGGGAC	TGCATGACGG	TGCTGCCGAC	GGCTCGGGAA	2280
170	CGCCAGCGGA	CCTCGCCGCG	ACGCTGAACC	TTGCGGTCAT	TCTGGTGGTC	GATTGCGCCC	2340
172	GCATGTCCA	GTCGGTTGCC	GCCCTCGTC	GCGGCTATGC	GGATCATCGC	GACGATATCC	2400
174	GGGTGGTTGG	CGTCATCCTC	AACAAGGTGCG	GCAGCGATCG	GCATGAAATG	ATGCTGCAGCG	2460
176	ATGCGCTCGG	CAAGGTGCGC	ATGCCTGTCT	TCGGCGTGCT	CCGGCAGGAC	AGGCATTGC	2520
178	AACTGCCGGA	GCGCCATCTC	GGGCTCGTC	AGGCGGGCGA	ACACTCAGCG	CTTGAGGGCT	2580
180	TCATCGAGGC	GGCGGCCGCG	CGGGTCGAGG	CTGCCTGCGA	TCTCGACGCC	ATCCGCCCTGA	2640
182	TCGCGACGAT	TTTCCCGCAG	GTGCCCGCGG	CGGCCGATGC	CGAGCGTTG	CGGGCGCTCG	2700
184	GTCAGCGCAT	CGCGGTCGCG	CGCGATATCG	CCTTGCCCTT	CTGCTACGAG	CACCTGCTTT	2760
186	ACGGCTGGCG	GCAAGGCCG	GCGGAGATT	CCTTCTTCTC	GCCGCTCGCC	GACGAGGGGC	2820
188	CGGATGCGGC	AGCCGATGCC	GTCTATCTTC	CGGGGGGTTA	TCCGGAGCTG	CATGCGGGGC	2880
190	AGCTGAGCGC	CGCCGCCCGA	TTCCGTTCCG	GCATGCATTC	CGCGGCGGAA	CGCGGCGCCC	2940
192	GCATCTTCGG	CGAGTGCAGG	GGCTATATGG	TGCTCGCGA	AGGGCTTGT	GCTGCCGATG	3000
194	GCACACGCTA	CGACATGCTC	GGCCTGCTC	CGCTCGTAAC	CAGTTTGCC	GAGCGCAGGC	3060
196	GGCACCTCGG	CTATCGCCGC	GTCTGCTCG	TCGACAACGC	CTTCTTCGAT	GGACCCATGA	3120
198	CGGCGCACGA	ATTCCACTAT	GGGACCATCG	TCGCCGAAGG	GGCGGCCGAT	CGGCTGTTG	3180
200	CGGTCAAGCGA	CGCCGCCCGG	GAGGATCTCG	GCCAGGCCGG	CCTCCGGCGC	GGCCCTGTCG	3240
206	CCGGTTCCCT	CATGCATCTG	ATCGACGTCG	CAGGTGCTGC	ATGAGCGCAC	CGATCGTTCA	3300
208	TGGTGGCGGC	ATCACCAGG	CCGCGAGCGC	CTATGGCGGC	CGGCCTGAAG	ACTGGCTCGA	3360
210	TCTGTCGACC	GGCATCAATC	CATGCCCGT	CGCCTTGC	CGGGTCCCTG	AGCGCGCCTG	3420
212	GCACCGGCTG	CCGGATCGGC	AGACGGTAGA	TGATGCGCGG	AGCGCCGCCG	CCGACTACTA	3480
214	CCGCACCAAC	GGCGTGTCTC	CTTTGCCGGT	GCCGGGCACC	CAGTCGGTGA	TCCAGCTCCT	3540
216	GCCACGTCTT	GCTCCGGCCA	ACAGGGCACGT	CGCGATTTTC	GGGCGACCT	ATGGCGAGTA	3600
218	TGCCCGCGTG	CTTGAAGCGG	CCGGCTTGC	TGTCGATCGC	GTCGCGGATG	CCGACGCGCT	3660
220	CACGGCGAA	CATGGGCTTG	TCATCGTCGT	CAACCCAAAC	AACCCGACCG	GCCGCGCCTT	3720
222	GGCGCCGGCG	GAGCTCTGG	CGATCGCCGC	AAGGCAGAAG	GCGAGCGCG	GACTGCTGCT	3780
224	GGTCGATGAG	GCCTTCGGCG	ATCTTGAGCC	GCAACTGAGT	GTCGCTGGTC	ACCGTCAGG	3840
226	GCAAGGCAAC	CTCATCGTC	TCCGCTCCTT	CGGCAAGTTC	TTCGGCCTTG	CGGGCCTGCG	3900
228	CCTCGGCTTC	GTCGTTGCGA	CCGAGCCAGT	GCTTGCATCC	TTTGCCTGATT	GGCTCGGTCC	3960
230	CTGGGCTGTC	TCCGGCCCGG	CGTTGACGAT	CTCGAAAGCG	CTGATGCAGG	GCGATACGAA	4020
232	GGCGATCGCG	GGGGCATCC	TCGAGCGTCG	CGCCGGCCTC	GATGCGGCTC	TCGATGGGGC	4080
234	AGGGCTAAC	CGTATCGCG	GCACGGGGCT	ATTCTGTCTG	GTCGAGCATC	CCAGGGCAGC	4140
236	TCTGCTGCA	GAGCGGCTCT	GGGAGGCCA	TATTCTCACG	CGCAAGTTCG	ACTATGCC	4200
238	GACCTGGCTC	AGGGTCGGTC	TTGCGCCCTGA	CGCGGCTGGT	GACCGACGGC	TGGCGGACGC	4260
240	GCTTGGCCCG	ATGGAGCTCT	GAGGTGTCTG	AGACGATCCT	GCTCATTCTC	GCGCTGGCGC	4320
242	TGGTGTATCGA	CCGCGTTGTC	GGCGATCCGG	ACTGGCTCTG	GGCGCGCGT	CCGCATCCGG	4380
244	TCGTGTTTTT	CGGCAAGGCC	ATCGGCTTTT	TCGACGCGCG	GCTGAACCGG	GAGGACCTCG	4440
246	AGGATAGCGC	GCGAAATTT	CGTGGCGTCG	TCGCGATCCT	TTTGTGCTT	GGCATCAGCG	4500
248	CCTGGTTCGG	CCATCTGCTG	CATCGCCTGT	TCGCCGTCT	CGGACCGCTC	GGCTTCTGCG	4560
250	TCGAGGCGGT	TCTGGTCGCG	GTCTTCCTGG	CACAGAAGAG	CCTCGCCGAT	CACGTGCGTC	4620

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252	GCGTGGCCGG	GGGCTTGCAG	CAGGGCGGGC	TGGAAGGCGG	GCGTGCAGGCC	GTGTCGATGA	4680
254	TCGTTGGTCG	CGATCCAAAG	ACGCTCGACG	AGCCGGCGGT	CTGCCGTGCC	GCGATCGAAA	4740
256	GCCTTGCAGA	GAATTCTCC	GACGGCGTCG	TGGCGCCGGC	CTTCTGGTAC	GCGGTTGCCG	4800
258	GCCTGCCGGG	GCTCTTGCC	TACAAGATGC	TGAACACCGC	CGATTCGATG	ATCGGCCACA	4860
260	AGTCGCCGAA	ATATCTGCAC	TTCCGGCTGGG	CCTCGGCCCG	ACTCGACGAT	CTCGCCAACC	4920
262	TGCCGGCAGC	GAGGCTCTCG	ATCCTTTGA	TCTCAGCCGG	TGCGCTGATC	CATCGTGGCG	4980
264	CCAGGCCCGC	CAAGGATGCG	CTGACCGTGG	CCCTTCGCGA	CCATGGCCTG	CACCGCTCGC	5040
266	CGAACTCCGG	CTGGCCGGAA	GCGGCCATGG	CCGGCGCGCT	CGATCTGCAG	CTTGCCGGTC	5100
268	CGCGGATCTA	TGGCGCGTC	AAGGTCAGCG	AACCTATGAT	CAACGGTCCG	GGCCGAGCGG	5160
274	TTGCAACAAAG	CGAAGACATC	GACGCCGGTA	TTGCTGTATT	TTATGGGCC	TGTACGGTCA	5220
276	TGGCCGGGTT	TGTTCTTGCA	ATCGCAATGA	TTTGATCGCG	GAAGTTGACC	TTCCGATTAA	5280
278	GACTCTGCTT	TCCATATGTA	TTAAGATCGT	ATCATATTG	ATCAGTTATT	CTCCTGGAAC	5340
280	GTGTTGGTTCC	ACCGGTACGT	GTTCGTCTTC	CCGGAGAGAG	AAGCATGCGC	AAAAGCTT	5398

283 (2) INFORMATION FOR SEQ ID NO: 2:

285 (i) SEQUENCE CHARACTERISTICS:
 286 (A) LENGTH: 8753 base pairs
 287 (B) TYPE: Nucleic Acid
 288 (C) STRANDEDNESS: Double
 289 (D) TOPOLOGY: Unknown

291 (ii) MOLECULE TYPE: cDNA

293 (iii) HYPOTHETICAL: No

C--> 295 (vi) ORIGINAL SOURCE:

296 (A) ORGANISM: Pseudomonas denitrificans
 297 (B) STRAIN:
 298 (C) INDIVIDUAL ISOLATE:
 299 (D) DEVELOPMENTAL STAGE:
 300 (E) HAPLOTYPE:
 301 (F) TISSUE TYPE:
 302 (G) CELL TYPE:
 303 (H) CELL LINE:
 304 (I) ORGANELLE:

306 (ix) FEATURE:

307 (A) NAME/KEY:
 308 (B) LOCATION:
 309 (C) IDENTIFICATION METHOD:
 310 (D) OTHER INFORMATION: Nucleotide Sequence of the 5' to 3'

311 strand from the 8753 bp EcoRII fragment of Pseudomonas
 312 denitrificans

315 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

318	GAATTGCGCA	GCGCCTACAT	GGCTGACCTC	AAGCAGTTCC	TGCTGGCCCA	GAAGAACGAG	60
320	GGCCGGCAGA	TTTCCCTCG	CGGGCCTGAG	TATTTTCGCG	CGCTCGACCT	GACGCCGCTC	120
322	GACAAGGTGC	GCGTGGTCAT	TCTCGGCCAG	GATCCCTATC	ACGGTGACGG	CCAGCGGCAT	180
324	GGGCTCTGCT	TCAGCGTTCG	CCCCGGTGTC	CGGACGCCGC	CGTCGCTGGT	CAACATCTAC	240
326	AAGGAACGTG	ATACCGATCT	CGGTATTCCG	CCGGCGCGTC	ACGGTTTCT	CGAAAGCTGG	300
328	GCAAGGCAGG	GCGTGTGCT	TTTGAACAGC	GTGCTGACGG	TAGAGCGCGG	GAACGTGCGT	360
330	CACACCAGGG	TCACGGTTGG	AAAAAGTTCA	CGGATGCGAT	CATCCGTGCG	GTCAACGAGG	420
332	CCGAGCATCC	CGTCGTCTTC	ATGCTTTGGG	GCTCCTATGC	GCAGAAGAAG	GCGGCCTTCG	480
334	TCGACCGCTC	GCGCCATCTT	GTCCTGAGGG	CACCACATCC	GTCGCCGCTC	TCAGCCCATT	540
336	CCGGCTTTCT	CGGCTGCCGG	CATTTTCCC	AGGCCAATGC	CTTCCTCGAA	AGCAAAGGCT	600

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342	TCGATCCGAT	CGACTGGCGG	CTGCCGGAAA	ATCCGGCTGC	GGACATCAAC	TGAAGGCTTG	660
344	GCGCGAATGA	CGGCTTGTC	GTCGCCCTGA	GGTCTTGCCT	TGGCGGCGGC	GATCCGCCTA	720
346	AGACGCCCGA	ACGAAATGGC	GGAGGCGGGC	ATGCGAAAAA	TTCTGATCAT	CGGCATCGGT	780
348	TGGGGCAATC	CCGAACACAT	GACCGTGCAG	GCGATCAACG	CGCTGAACGT	CGCCGACGTG	840
350	CTCTTTATCC	CGACCAAGGG	AGCGAAGAAG	ACCGAGCTTG	CCGAAGTGC	CCCGGACATC	900
352	TGCGCCCGCT	ACGTCACGCG	CAAGGACAGC	CGCACCGTCG	AGTCGCGGT	GCCCGTGC	960
354	CGCACCGAAG	GCGTCAGCTA	TGACGGCAGC	GTCGATGACT	GGCACGCCA	GATCGCTGGG	1020
356	ATTTACGAAG	CGCTTCTATC	GAAGGAGTTG	GGCGAAGAGG	GAACGGCGC	GTTTCTCGTC	1080
358	TGGGGCGACC	CGATGCTCTA	TGACAGCACC	ATTCCGATCG	TCGAGCGGGT	CAAGGCACGC	1140
360	GGTGAGGTGCG	CCTTCGCCTA	CGACGTCATT	CCCAGGATCA	CCAGTCTGCA	GGCGCTTTGC	1200
362	GCCAGGCCACC	GCATTCGCGT	GAACCTCGTC	GGCAAGCGG	TGGAGATCAC	CACGGGGCGT	1260
364	CGGCTGCACG	AAAGCTTCC	CGAGAAGAGC	CAGACCTCGG	TCGTCATGCT	CGATGGCGAA	1320
366	CAGGCCTTTC	AGCGGGTCGA	GGACCCGGAG	GCGGAGATCT	ATTGGGGCGC	CTATCTCGGC	1380
368	ACGCGGGATG	AGATCGTCAT	TTCCGGCCGC	GTGGCTGAGG	TGAAGGACCG	GATCCTTGAA	1440
370	ACGCGGGCGG	CGGCGCGCGC	GAAGATGGGA	TGGATCATGG	ACATCTATCT	CCTCGCGCAAG	1500
372	GGCGCCGACT	TCGACGAGTG	ACGGGGAGGG	CCGATCTCGC	TCGTGTTGA	TCTCACTCAA	1560
374	GGTTTGCAGC	TGTGTTATAG	CGTCTTAAGA	GGCTTCTTC	GGGAGGAGAA	CCTCAAGTGA	1620
376	TGACGGATT	GATGACCAGC	TGCGCCCTTC	CATTGACCGG	AGATGCCGC	ACCGTCGCTT	1680
378	CGATGCGCCG	CGGCGCCTGC	CCGTCCTTGG	CAGAGCCGAT	GCAGACCGGC	GACGGCCTGC	1740
380	TCGTGAGGGT	GAGGCCAACG	GATGACAGCC	TGACGCTGCC	GAAGGTCAATT	GCCCTTGCCA	1800
382	CGGCTGCCGA	GCGCTCGGC	AATGGCATTCA	TCGAGATTAC	CGCGCGCGGA	AACTGCAAGC	1860
384	TTCGCGGCCCT	GAGCGCGGCT	TCGGTGCCAA	GGCTGGCGCA	GGCGATCGGC	GATCGGGAGA	1920
386	TCGCCATTGC	CGAGGGGCTC	CGGATCGAGG	TGCGCCCCCT	GGCCGGCATC	GACCGGGACG	1980
388	AGATGCCGA	TCCCGGGCCG	ATTGCCACTG	AGCTTCGTGA	AGCGTTGGAT	GTGCGCCAGG	2040
390	TGCCGTTGAA	GCTTGCAACCC	AAATTATCCG	TCGTCATCGA	TAGCGGTGGC	CGGTTGGTC	2100
392	TCGGCGCTGT	CGTCGCGGAC	ATTGCCCTTC	AGGCGGTTTC	GACTGTGCCG	GGGGTGGCCT	2160
394	GGGTGCTGTC	GCTTGGCGGC	ACGTCAACGA	AGGCATCGAG	CGTCGGGACG	TTGGCCGGCA	2220
396	ACGCGGTCGT	GCCGGCCCTG	ATCACCATTG	TCGAGAAACT	GGCGAGCCTG	GGCACGACGA	2280
398	TGCGCGGGCG	CGATCTGGAC	CCGTCGGAAA	TCCGCGCGCT	CTGTCGTGT	GAGACATCGT	2340
400	CCGAACGCC	GGCCGCTCCG	CGTTGGCCG	CAATACCGG	CATTGATCGC	CTGGGTAACG	2400
402	CCGACACCGT	TCTCGCCCTC	GGTCTGGCCT	TTGCTCAGGT	GGAGGCGCC	GCGCTGGCAT	2460
404	CCTACCTGCA	TCAGGTCCAG	GGCCTTGGCG	CCAATGCGAT	CCGGCTTGC	CCCCGGCACG	2520
410	CCTTCTTCGT	CCTCGCCCTT	TGCCCCGAGA	CCGCGGCTGT	GGCGCAGAGC	CTGGCAGCGT	2580
412	CACACGGTT	TCGCATTGCC	GAGCAGGATC	CGCGCAATGC	GATGCCACC	TGCGCCGGCA	2640
414	GCAAGGGTTG	CGCCTCGCG	TGGATGGAAA	CCAAGGGCAT	GGCCGAGCGC	CTCGTCGAGA	2700
416	CGCGCGCGGA	ATTGCTCGAC	GGGTCGCTCA	CCGTGCATCT	CTCCGGCTGC	GCCAAGGGCT	2760
418	GCGCCCGGCC	GAAGCGTCC	GAACTGACG	TTGTCGGTGC	GCCATCAGGA	TACGGGCTTG	2820
420	TGTTAAATGG	GGCTGCCAAT	GGCTTGCCAA	GCGCTACAC	CGATGAGAAT	GGATGGGAT	2880
422	CGGCCCTTGC	CCGGCTCGGC	GGGCTGGTGC	GGCAAAACAA	AGACGCTGGC	GAATCGGC	2940
424	AGTCCTGTCT	TACACGGCTC	GGAGCTGCC	CGCTCTCGGC	AGCGTTCGAA	CAGGGATAGA	3000
426	CATGCCCTGAG	TATGATTACA	TTCGCGATGG	CAACGCCATC	TACGAGCGTT	CCTTCGCCAT	3060
428	CATCCCGGCC	GAGGCCGATC	TGTCGCGCTT	CTCCGAAGAG	GAAGCGGATC	TGGCTGTGCC	3120
430	CATGGTGCAC	GCCTCGGGTT	CCGTCGAGGC	GACCAGGCAG	TTCGTGTGTTT	CTCCCGATTT	3180
432	CGTAAGCTCG	GCCCCGCGG	CGCTGAAAGC	CGGTGCGCCG	ATCCTCTGCG	ATGCCGAGAT	3240
434	GGTTGCGCAC	GGTGTCAACC	GCGCCCGTCT	GCCGCCCGC	AACGAGGTGA	TCTGCACGCT	3300
436	GCGCGATCCT	CGCACGCCG	CACTTGC	CGAGATCGGC	AACACCCGCT	CCGCCGCAGC	3360
438	CCTGAAGCTC	TGGAGCGAGC	GGCTGGCCGG	TTCGGTGGTC	GCGATCGCA	ACGCGCCGAC	3420
440	GGCGTTGTT	TTCCCTTGTG	AAATGCTGCC	CGACGGCGC	CCGAAGCCGG	CGGCAATCCT	3480
442	CGGCATGCC	GTCGGTTTCG	TCGGTGC	GGAAATCGAAG	GATCGC	CGGAGAACTC	3540

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Invalid Line Length:

The rules require that a line not exceed 72 characters in length. This includes spaces.

Seq#:1;	Line(s)	283
Seq#:2;	Line(s)	631
Seq#:3;	Line(s)	699
Seq#:4;	Line(s)	774
Seq#:5;	Line(s)	856
Seq#:6;	Line(s)	952
Seq#:7;	Line(s)	1023
Seq#:8;	Line(s)	1105
Seq#:9;	Line(s)	1177
Seq#:10;	Line(s)	1258
Seq#:11;	Line(s)	1311
Seq#:12;	Line(s)	1370
Seq#:13;	Line(s)	1436
Seq#:14;	Line(s)	1509
Seq#:15;	Line(s)	1593
Seq#:16;	Line(s)	1694
Seq#:17;	Line(s)	1750
Seq#:18;	Line(s)	1815
Seq#:19;	Line(s)	1881
Seq#:20;	Line(s)	1949
Seq#:21;	Line(s)	2012
Seq#:22;	Line(s)	2081
Seq#:23;	Line(s)	2147
Seq#:24;	Line(s)	2221
Seq#:25;	Line(s)	2305
Seq#:26;	Line(s)	2396
Seq#:27;	Line(s)	2460
Seq#:28;	Line(s)	2531
Seq#:29;	Line(s)	2739
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Seq#:31;	Line(s)	2991
Seq#:32;	Line(s)	3071
Seq#:33;	Line(s)	3173
Seq#:34;	Line(s)	3298
Seq#:35;	Line(s)	3349
Seq#:36;	Line(s)	3399
Seq#:37;	Line(s)	3470
Seq#:38;	Line(s)	3552
Seq#:39;	Line(s)	3621
Seq#:40;	Line(s)	3698
Seq#:41;	Line(s)	4207
Seq#:42;	Line(s)	4295
Seq#:43;	Line(s)	4401

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 09/28/2005
PATENT APPLICATION: US/10/724,598 TIME: 10:47:27

Input Set : N:\CrF3\RULE60\10724598.raw.txt
Output Set: N:\CRF4\09282005\J724598.raw

Seq#:44; Line(s) 4454
Seq#:45; Line(s) 4515
Seq#:46; Line(s) 4590
Seq#:47; Line(s) 4679
Seq#:48; Line(s) 4848
Seq#:49; Line(s) 5058
Seq#:50; Line(s) 5118
Seq#:51; Line(s) 5185
Seq#:52; Line(s) 5257

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/724,598

DATE: 09/28/2005

TIME: 10:47:27

Input Set : N:\Crf3\RULE60\10724598.raw.txt
Output Set: N:\CRF4\09282005\J724598.raw

L:31 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]
L:32 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]
L:38 M:238 W: Alpha Fields not Ordered, Reordered [(A) APPLICATION NUMBER:] of (1) (vii)
L:62 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:295 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:643 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:711 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:786 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:868 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:964 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:1035 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:1117 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:1189 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:1270 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:1323 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:1382 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:1448 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:1521 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:1605 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:1706 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:1766 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:1832 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:1897 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:1965 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:2024 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:2093 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:2159 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:2237 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:2316 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:2408 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:2472 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:2543 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:2751 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:2930 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:3002 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:3083 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:3190 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:3310 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:3361 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:3410 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:3482 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:3564 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:3633 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:3710 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:4219 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:4307 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:4413 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:4471 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/724,598

DATE: 09/28/2005

TIME: 10:47:27

Input Set : N:\Crf3\RULE60\10724598.raw.txt
Output Set: N:\CRF4\09282005\J724598.raw

L:4532 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:4607 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:4691 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:4860 M:220 C: Keyword misspelled or invalid format, [(vi) ORIGINAL SOURCE:]
L:5467 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=56
L:5494 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=57
L:5517 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=58
L:5540 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=59
L:5567 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=60